

## SEARCH REQUEST FORM

Requestor's

Name:

Marianne Padgett

Serial

Number:

09/187,551

Date:

5/11/99

Phone:

308-2336

Art Unit:

1762

## Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

Litigation search for

US. PN. 5,571,571

SN 08/259,584

## STAFF USE ONLY

Date completed:

5/12/99

Searcher:

Fathleen Fuller

Terminal time:

10

Elapsed time:

CPU time:

Total time:

15

Number of Searches:

Number of Databases:

Search Site

☒ STIC☐ CM-1☐ Pre-S

Type of Search

☐ N.A. Sequence☐ A.A. Sequence☐ Structure☒ Bibliographic

Vendors

☐ IG Suite☐ STN☒ Dialog☐ APS☐ Geninfo☒ SDC☐ DARC/Questel☒ Other

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NBR US5571571/PN

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4	1	US5571961/PN
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10	1	US5571573/PN

UP N OR DOWN N?

SEL 8

SS 1 RESULT (1)

SS 2?  
PRT FU

-1- (LEGSTAT)  
PN - US 5571571 [US5571571]  
DT - US-P  
ACT - 94.06.14 US/AE-A  
APPLICATION DATA (PATENT)  
{US 259584/94 [94US-259584] 94.06.14}  
ACT - 94.08.22 US/AS02  
ASSIGNMENT OF ASSIGNOR'S INTEREST  
APPLIED MATERIALS, INC. LEGAL AFFAIRS DEPARTMENT 3050 BOWERS AVENUE M/S  
#0934 SA \* MUSAKA, KATSUYUKI : 19940810; MIZUNO, SHINZUKE : 19940725  
ACT - 96.11.05 US/A  
PATENT  
ACT - 99.03.02 US/RF  
REISSUE APPLICATION FILED  
981105  
UP - 9918  
SS 2?

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SS 1?  
NBR US5571571/PN

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11	1	US5571554/PN
12	1	US5571569/PN
13	1	US5571571/PN
14	1	US5571577/PN
15	1	US5571615/PN

UP N OR DOWN N?

SEL 13

SS 1 RESULT (1)

SS 2?  
PRT FU

-1- (PAST)  
AN - 9909-001269  
PN - US5571571  
DT - A (UTILITY)  
OG - 99.03.02  
CO - REA  
ACT - REISSUE APPLICATION FILED  
SH - REISSUE APPLICATION FILED

SS 2?

*Dialog*

File 345:Inpadoc/Fam.& Legal Stat 1999/UD=9917  
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Set Items Description

? S PN=US 5571571

S1 1 PN=US 5571571  
? T1/9/1

1/9/1  
DIALOG(R)File 345:Inpadoc/Fam.& Legal Stat  
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12226506  
Basic Patent (No,Kind,Date): JP 7022316 A2 950124 <No. of Patents: 002>

PATENT FAMILY:

JAPAN (JP)

Patent (No,Kind,Date): JP 7022316 A2 950124  
THIN FILM FORMATION OF SEMICONDUCTOR DEVICE (English)  
Patent Assignee: APPLIED MATERIALS INC  
Author (Inventor): MIZUNO SHINSUKE; MUTSUHIRA KATSUYUKI  
Priority (No,Kind,Date): JP 93145070 A 930616  
Applic (No,Kind,Date): JP 93145070 A 930616  
IPC: \* H01L-021/205  
CA Abstract No: ; 123(06)072326S  
Derwent WPI Acc No: ; C 95-095327  
Language of Document: Japanese

UNITED STATES OF AMERICA (US)

Patent (No,Kind,Date): US 5571571 A 961105  
METHOD OF FORMING A THIN FILM FOR A SEMICONDUCTOR DEVICE Method of forming a thin film for a semiconductor device (English)  
Patent Assignee: APPLIED MATERIALS INC (US)  
Author (Inventor): MUSAKA KATSUYUKI (JP); MIZUNO SHINZUKE (JP)  
Priority (No,Kind,Date): US 259584 A 940614; JP 93145070 A 930616; US 184331 B2 940119  
Applic (No,Kind,Date): US 259584 A 940614  
National Class: \* 427574000; 427563000; 427575000; 427579000  
IPC: \* H05H-001/02; H05H-001/30; H05H-001/24  
CA Abstract No: \* 123(06)072326S; 125(26)344926R; 125(26)344926R  
Derwent WPI Acc No: \* C 95-095327  
Language of Document: English

UNITED STATES OF AMERICA (US)

Legal Status (No,Type,Date,Code,Text):  
US 5571571 P 930616 US AA PRIORITY (PATENT)  
JP 93145070 A 930616  
US 5571571 P 940119 US AA PRIORITY  
US 184331 B2 940119  
US 5571571 P 940614 US AE APPLICATION DATA (PATENT)  
(APPL. DATA (PATENT))  
US 259584 A 940614  
US 5571571 P 961105 US A PATENT  
US 5571571 P 990302 US RF REISSUE APPLICATION FILED  
(REISSUE APPL. FILED)  
981105

*Leys*

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FILES - PAGE 1 of 6 (NEXT PAGE for additional files)

NAME	PG	DESCRIP	NAME	PG	DESCRIP
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---CASES & ADMINISTRATIVE DECISIONS---

IPOMNI	1	Int Prop Cases & Reg Matl
PTOMNI	1	FEDCTS, PTO, ITC, ALLREG
CASES	1	FEDCTS, PTO & ITC
FEDCTS	2	Patent cases from Fed. Cts.
CCPA	2	Ct Customs & Patent Appeals
CAFC	2	Patent cases from Fed. Cir.
PTO	2	PATAPP & COMMR

-----SECONDARY SOURCES-----

CHISUM	5	Chisum on Patents
MPEP	5	Manual of Patent Exam Proc
PTORUL	5	Patent Office Rules
MILGRM	5	Milgrim on Trade Secrets
IPLTR	5	Intell Prop Law Nwltrs
IPLR	5	Intell Prop Law Rev Articles

\* Selected coverage 1/15/71 to 12/3/74

+ J NLS

-----PATENTS-----

ALL	4	UTIL, DESIGN, PLANT, SIR, REEXAM & REISS
UTIL	4	Full Text Patents from 1971*
DESIGN	4	Full Text Patents from 1976
PLANT	4	Full Text Patents from 1976
REEXAM	4	Reexamination Certificates
REISS	4	Reissue Patents
SIR	4	Defensive Publications
ASSIGN	4	Assignee
ABSTCL	4	Abstracts & Claims

*1 listing from all these database*

5,571,571

<=2> GET 1st DRAWING SHEET OF 9

Nov. 5, 1996

Method of forming a thin film for a semiconductor device

REISSUE: Reissue Application filed Nov. 5, 1998 (O.G. Mar. 2, 1999) Ex. Gp.:  
1762; Re. S.N. 09/187,551

INVENTOR: Musaka, Katsuyuki, Sakae, Japan  
Mizuno, Shinzuke, Narita, Japan

ASSIGNEE-AT-ISSUE: Applied Materials, Inc., Santa Clara, California (02)

APPL-N0: 259,584

FILED: Jun. 14, 1994

FOR-PRIOR:

Jun. 16, 1993 Japan 5-145070

REL-US-DATA:

Continuation-in-part of Ser. No. 184,331, Jan. 19, 1994 now abandoned

INT-CL: [6] H05H 1#02; H05H 1#30; H05H 1#24

US-CL: 427#574; 427#563; 427#575; 427#579; 438#784; 438#789;

CL: 427;438;

SEARCH-FLD: 427#563, 574, 578, 579, 575

REF-CITED:

U.S. PATENT DOCUMENTS

<=3>	4,282,267	8/1981	* Kuyel	427#563
<=4>	4,461,783	7/1984	* Yamazaki	427#563
<=5>	4,668,365	5/1987	* Foster et al.	204#192.23
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			World Intellectual Property	
92/20833	11/1992	*	Organization (WIPO)	C23#C1.600

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Abstract of JP63062238 from Patent Abstracts of Japan vol. 12, No. 285 (E-642) published Mar. 1988 to Tsunetoshi et al.

Webb et al, "Silicon Dioxide Films produced . . . " Oric, 2nd Int'l ULSI Conf.  
1989 No month.

Yu et al "Step Coverage Study of PETEOS . . . " VMIC Conf. 1990 IEEE, Jun.  
12-13, 1990.

PRIM-EXMR: Padgett, Marianne

LEGAL-REP: Morris; Birgit E.  
Einschlag; Michael B.

CORE TERMS: silicon, film, oxide, gas, chamber, strip, plasma, fluorine,  
deposition, electrode, frequency, layer, aluminum, conductive, substrate,  
semiconductor, deposited, spacing, power source, width, graph, gases, voids,  
atomic, concentration, deposit, halogen, precursor, sidewall, ratio

ABST:

A method of forming conformal, high quality silicon oxide films that can be deposited over closely spaced, submicron lines and spaces without the formation of voids, comprises forming a plasma of TEOS and a selected halogen-containing gas in certain ratios. By proper control of the energy sources that create the plasma, the proper selection of the halogen-containing gas and selection of other processing parameters, high deposition rates can also be achieved.

NO-OF-CLAIMS: 10

"

EXMPL-CLAIM: <=20> 1

NO-OF-FIGURES: 34

NO-DRAWNG-PP: 9

PARCASE: This application is a continuation-in-part of application Ser. No. 08/184,331 filed Jan. 19, 1994, now abandon, entitled "A METHOD OF FORMING A THIN FILM FOR A SEMICONDUCTOR DEVICE".

SUM:

The present invention relates to a method of forming a thin film for a semiconductor device. More particularly, this invention relates to a plasma-enhanced chemical vapor deposition (hereinafter PECVD) method for forming a silicon oxide thin film on a semiconductor substrate.

BACKGROUND OF THE INVENTION .